May Mixed Waste Subgroup Highlights

The Hanford STCG Mixed Waste (MW) Subgroup met on May 13, 1999 in the ETB Wenatchee River. Norm Olson introduced Clark Carlson, PNNL, who reviewed the results of a study done to demonstrate the efficiency of several ion-exchange materials in removing strontium (Sr) - 90 from Hanford's N-Area well water. This study was done with funds from the Efficient Separations and Processing Crosscutting Program. The results of this study may impact the operations of the Liquid Effluents group at Hanford as they may be faced with removing Sr from liquid wastes in the future. Clark gave a viewgraph presentation on the results of the study. Seven ion-exchange materials were tested with three concentration levels of Sr. Some of the materials were commercially available materials such as IONSIV IE-911 manufactured by UOP and some were materials produced on an experimental basis for this test such as a modified mica material that Pennsylvania State University (PSU) produced. The PSU modified mica used mica from Montana. The materials tested included inorganic materials, that could be used as barriers in a one-pass system, and organic materials, that could be regenerated and reused but not at high temperatures.

Clark presented graphs and tables of the test results. The two best materials were the IONSIV IE-911 and the PSU modified mica. Both of these materials removed over 95% of the Sr at all loading levels. The difference between these two materials is the cost of the modified mica is $5/lb while the IONSIV IE-911 is $200/lb. Thus the best solution was to use the modified mica for Sr removal. The use of organics is not preferred as they sometimes breakdown at low radiation doses and become MW after their use. Norm Olson stated that a report is being written on Tritium removal from water and we may want to look at using modified mica to remove Sr at the same time. Copies of the report entitled "Demonstration of Strontium Removal from Hanford N-Area Well Water" will be given to all subgroup members along with copies of the viewgraphs from Clark's presentation.

Norm Olson reviewed the status on efforts to finish this year’s MW S&T needs. There is one new technology need this year, RL-MW025, entitled "Getter For Hydrogen" and potentially two new science needs, RL-MW027-S/028-S, entitled, "Technology for the Determination of Organic Constituents in Small Waste Samples" and "Technology to Determine Radionuclide Speciation in Waste". Both of the science needs are from the 200-Area lab group and are still being written up and then need to be approved. The hydrogen getter technology need is to mitigate the production of hydrogen gas generation in transportation packages used to ship Hanford waste to WIPP and SRS. The getter will ensure that explosive limits are not reached nor approached during transport. Hanford may get funding from the MWFA to demonstrate a technology solution this FY. The need was endorsed by the subgroup. The science needs will be sent out to

the subgroup members for endorsement also. There is a June 8 meeting scheduled on TRU waste that will also address the hydrogen getter issue. It was suggested that information on all the caissons at Hanford be included in the technology need, RL-MW016, entitled "System to Retrieve RH TRUW From Caissons". This would point out the amount of waste at Hanford and the problems that will be involved in retrieving the caisson waste. Currently only the 200-Area caissons are in the write-up and not the 600-Area ones. Norm stated that information on all caissons will be added to the write-up.

Norm Olson reviewed the new status form for the MW needs as well as the status of all the S&T needs. The new form has several new columns added to it including: Hanford PBS number, waste stream number, which MWFA Work Package is assigned the work scope, and whether the MWFA is addressing the need. Another column on whether there is funding to work on meeting the need will be added by Norm. The next version of the status table will have this new information on funding.

Norm Olson then played a video of the Lasertronic demonstration that was made during his trip to California. The video showed a laser removing paint from the sample Hanford sent to Lasertronics. The demonstration was on non-radioactive samples and a vacuum system would be needed when removing radioactive materials using the laser. One thing to prove would be that all material removed was being collected by the vacuum system. Florida International University has tested the Lasertronic system and it passed all the tests. It was shown to collect all the removed material. The Hanford labs may use the laser system to clean sample carriers. The removed material would go through a HEPA filter system.

The next MW Subgroup Meeting will be on June 10 at 1pm in the EESB Stampede Room.

Mixed Waste Subgroup Meeting Attendees - 05/13/99

Gary Ballew	PREC	946-0611
Bill Bonner	PNNL	372-6263
Clark Carlson	PNNL	376-4327
Ellen Dagan	DOE-RL	376-3811
Pamela Innis	EPA	376-4919
Tina Masterson-Heggen	Ecology	736-5701
Norm Olson	FDH-TM	372-4810
Wayne Ross	PNNL	372-4684
Steve Weakley	PNNL	372-4275